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SEABOURNE REPORT
VOL. XI
HIST. OF OPNS IN THE
EAST LUFTWAFFE SIS

TOP SECRET

THE SIGNAL INTELLIGENCE SERVICE

OF THE

GERMAN LUFTWAFFE

VOL. XI

HISTORY OF OPERATIONS IN THE EAST

LUFTWAFFE SIS

TOP SECRET

VOL. XI

HISTORY OF OPERATIONS IN THE EAST

LUFTWAFFE SIS

F O R E W O R D

Between the time of the Luftwaffe's creation and the outbreak of World War II, its SIS devoted much time and effort to the monitoring of the radio traffic of the East, and in consequence had developed many signal intelligence specialists in that field.

The war itself, however, yielded no signal intelligence developments in this quarter in any way comparable to the refinements of SIS techniques evolved in the West particularly. This was due in large part to the weaker challenge presented by the Russian Air Force, especially in strategic air power, compared to that of the western Allies.

Nevertheless, the Luftwaffe SIS of the East was not without its successes, as will be revealed, it is believed, in this and the succeeding volume. Certainly it coped with its particular problems no less intelligently than did its companion organizations of the West and South.

J.G. SEABOURNE
Colonel, Air Corps,
SIS, USAAF.

VOL. XI

HISTORY OF OPERATIONS IN THE EAST

LUFTWAFFE SIS

By

Colonel Hans Eick
Major Hans Windels
Captain Wadim Herold

(All of the 353rd Regiment, East,
Luftwaffe SIS).

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LUFTWAFFE SIS

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PART ONE

THE LUFTWAFFE SIS IN THE EAST

By

Colonel Hans Eick
C.O., 353rd Regiment, East,
Luftwaffe SIS

I. General

The overall mission of the Luftwaffe SIS on the Russian Front was the interception and identification of the Russian Air Force radio traffic.

To accomplish this mission it was first necessary to determine the types of signal communication being used by the Russians. For both W/T and R/T, the high frequency band was used almost exclusively, the main exception being navigational aids (radio beacons), which were used on medium frequency. Until the end of 1942, only W/T traffic was found; thereafter R/T was also employed, increasing greatly from 1944 on. The Russians used radar only to a small extent, beginning at the end of 1944. Almost all W/T traffic was encoded or enciphered.

From the German point of view, all Russian W/T traffic could theoretically have been intercepted in one centrally located station. However, in practice it was found, as is so often the case, that areas of skip, natural barriers, etc., precluded such a plan, and led to the establishment of numerous intercept stations all along the front.

Cryptanalytic problems were solved by the use of a relatively large number of personnel, not a few of which were capable linguists and could also be used to translate the contents of decoded messages.

A further problem occasioned by the expansiveness of the front was how to communicate the results of signal intelligence to those units and headquarters which could best profit by it. The recipients of such intelligence were the Chi-Stelle, the A-2's of the Luftflotten together with their tactical units on the Russian Front, and the signal intelligence services of the Army and the Navy. Therefore, pains had to be taken either to site SIS units in the immediate areas of such headquarters, or at least in localities where good wire communication was available. Because of danger of interception, and delays caused by the necessity of enciphering messages, radio was considered only an auxiliary means of communication.

Although original intentions were of the best, problems encountered on the Russian front were of such a nature that these axiomatic SIS concepts could very often not be put into effect in toto, and at best usually represented a compromise solution.

II. Development, 1936-1941. (See Figure No. 1)

Until the start of the war with Russia, interception of Soviet radio traffic was accomplished by several fixed SIS stations, each of which was assigned a prescribed area to monitor. In the summer of 1936, the first of these stations was established in Glinlow, west of Berlin. In 1937-1938 five further stations were erected in Breslau, Pulsnitz, Bromberg, Kobbelbude and Hirschstaetten, near Vienna. Each of these fixed SIS stations did its own preliminary evaluation work; nevertheless final evaluation and the compilation of reports were performed by the Chi-Stelle. The stations were operationally controlled by the Chi-Stelle, but

Evolution of the Luftwaffe SIS in the East

~ 1936 – 1940 ~

1936

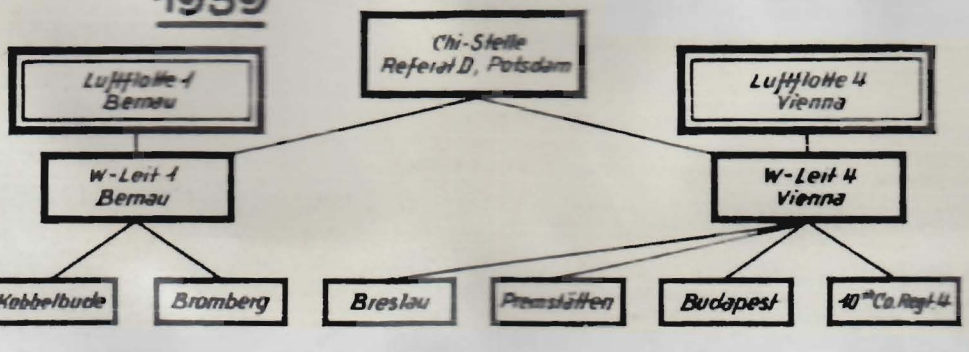
Glindow

Figure No. 1

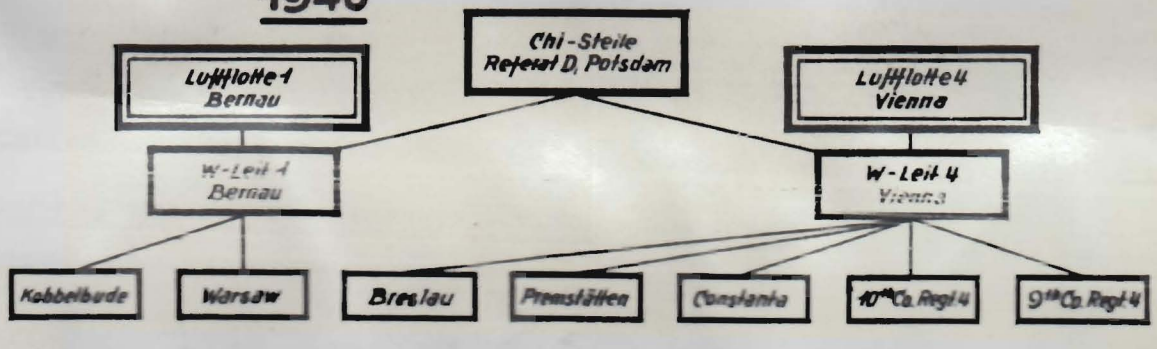
1937

1938

1939



1940



administratively were assigned to the signal regiments of the Luftflotten in whose area they were located. Thus the stations in Hirschstaetten and Breslau were assigned to LNR 4; the remainder to LNR 1.

This policy was a great mistake, and remained a sore point with SIS personnel throughout the entire war. It meant virtually that the SIS units were called upon to serve two masters, an impossible situation from the military point of view. Frequent differences of opinion arose between higher headquarters, each wishing to be considered as the authority actually controlling the SIS. The situation was often intolerable.

It soon became evident that the personnel and equipment available for the monitoring of Russian radio traffic, which was becoming constantly more extensive and complicated, were not sufficient. The Russian methods of assigning call-signs and frequencies became more and more complex. Special complications resulted from the fact that each Russian air army had its own signal procedure and cryptographic systems which, according to the ability of the individual Russian signal officers, were either more or less difficult for the Luftwaffe SIS. There were some air armies, which, owing to the incapability or negligence of their signal officers, were looked upon by the SIS with a sort of affection, while there were others whose traffic could be analyzed only by bringing to bear all the resources available.

The most difficult task of all was that on the northern sector. This was due in part to the fact that good land-line communication existed in the Leningrad area, and was available to the Russians throughout all of the static warfare in that region.

Owing to ever-present personnel problems, the organization of the SIS during 1938 was not significantly expanded in the East. Luftflotten 1 and 4 wished to have its own SIS unit. Each wished to receive SIS reports directly from the units located in its area, and not via the Chi-Stelle. In order to meet these requirements, W-Leitstellen were created in the summer of 1938 in the immediate vicinity of each Luftflotte concerned. It was intended that these Leitstellen render interim reports to the Luftflotten, while expediting the intercepted material to the Chi-Stelle for further processing. The personnel necessary for this purpose, principally cryptanalysts and evaluators, was drawn from the fixed SIS stations, and, to a lesser extent, from the Chi-Stelle. This withdrawal of personnel from already weak organizations, caused a deterioriation there, without commensurate gain to the new entities.

In the summer of 1939, the Leitstellen, the fixed SIS stations, and the mobile intercept companies on the two sectors were combined into SIS battalions, which, in turn, were the third battalions of the respective Luftflotte signal regiments.

At the beginning of the war with Poland, the Luftwaffe SIS in the East presented the following picture:

1. Referat D of the Chi-Stelle.

2. The 3rd Battalion of LNR 1, comprising:

   W-Leit 1 in Bernau.

   The fixed SIS station in Kobbelbude.

   The fixed SIS station in Bromberg
   (transferred there from Pulsnitz).

3. The 3rd Battalion of LNR 4, comprising:

W-Leit 4 in Vienna

The fixed SIS station in Breslau.

The fixed SIS station in Premstaetten, near Graz (transferred there from Hirschstaetten).

The fixed SIS station in Budapest.

The 10th Company of LNR 4 (newly activated, and employed at the front during the Polish campaign).

At the conclusion of the Polish campaign, monitoring of Poland was discontinued. Its place was taken by the Balkan countries and Turkey, which were monitored from Vienna, Premstaetten and Budapest.

The year 1940 brought but few changes. The fixed SIS station in Bromberg was moved forward to Warsaw. An SIS station and D/F were erected in Kirkenes, and the SIS station in Budapest set up a satellite station in Constanta. A new intercept company, the 9th Company of LNR 4, was activated.

The situation as outlined above remained static until the beginning of the war with Russia. The further development of the SIS on the Eastern Front up to the creation of the SIS Regiment, East, is contained in separate studies of the north, central and southern sectors to be found in this volume (See Figure No. 2).

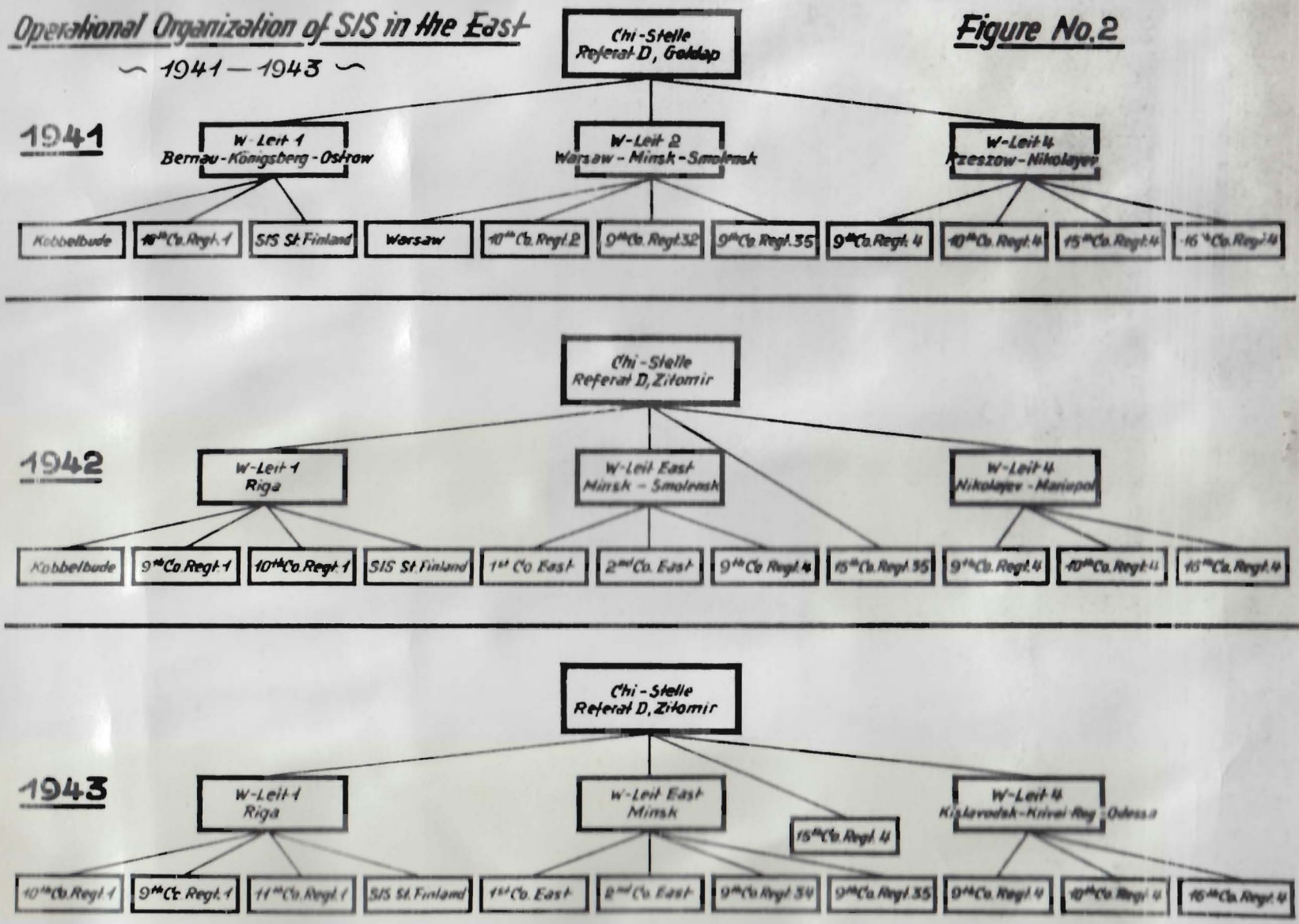
III. Organization of the SIS Regiment, East.

In September, 1944 the SIS Regiment 353 was activated. The need on the part of subordinate SIS units for a more unified operational and administrative chain of command was only realized up to the level of regimental headquarters, and then only on paper, since the Chi-Stelle still continued to traffic directly with subordinate units of the regiment. The regiment still suffered from divided control, being operationally subordinate to the Chi-Stelle, and administratively to the

Operational Organization of SIS in the East

~ 1941 — 1943 ~

Figure No.2



Chief Signal Officer through General Klemme, a non-specialist administrative officer. Personal motives had again prevented the basic SIS desire for a unified organization from being totally realized.

SIS Regiment 353 was organized as follows:

> Regimental headquarters with the 25th Company (evaluation), and the 12th Company (intercept), in Cottbus.
>
> 1st Battalion (north), formerly the 3rd Battalion of LNR 1, with four companies, in East Prussia.
>
> 2nd Battalion (center), formerly SIS Battalion, East, with five companies, in Poland.
>
> 3rd Battalion, (south), formerly the 3rd Battalion of LNR 4, with five companies, in Austria. (See Figure No. 3).

All the battalions had numerous intercept and D/F out-stations along the entire front.

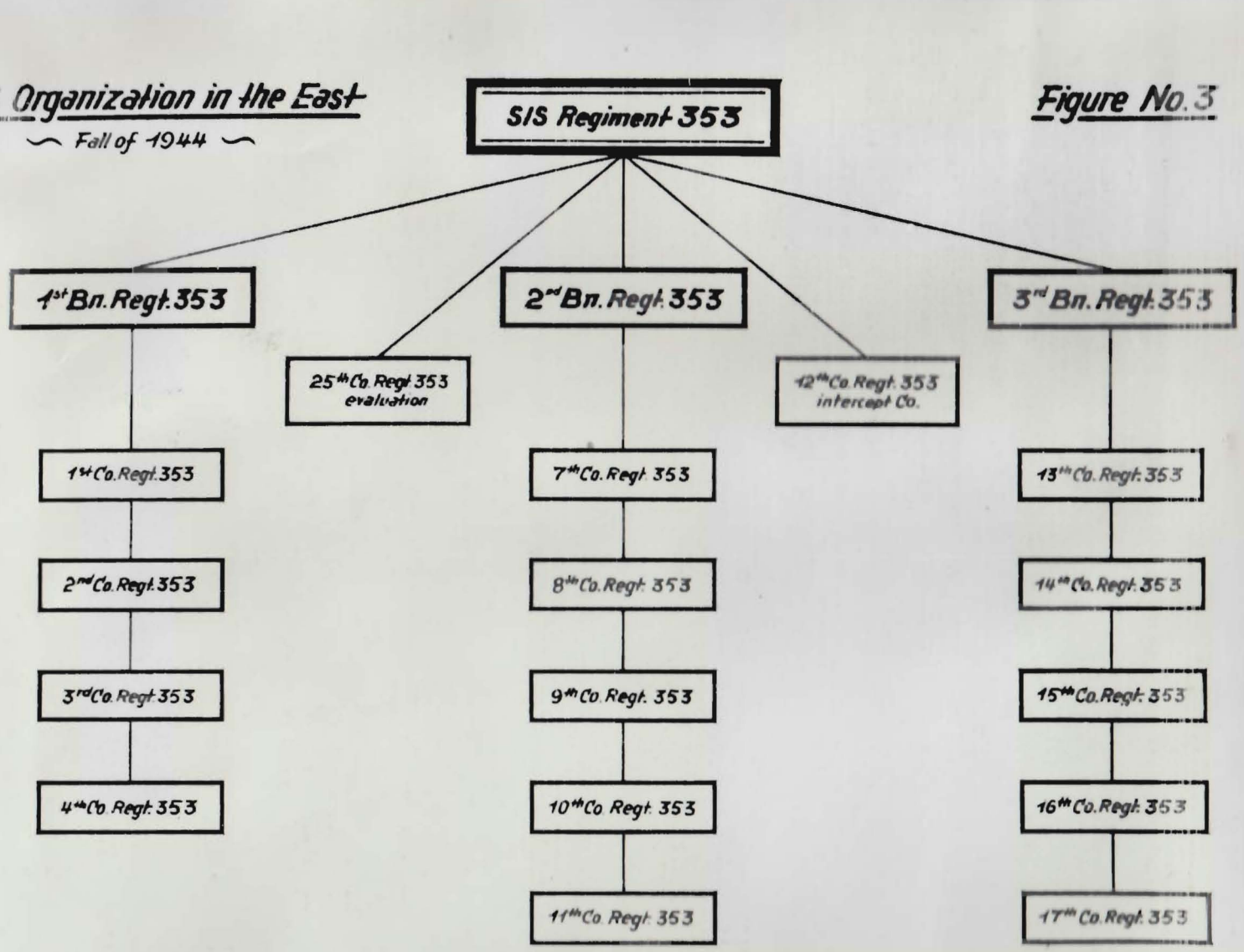
Owing to the Russian advances, the regimental staff, together with the 25th and 12th Companies, moved to Dresden in the middle of February, 1945; from there, under pressure of further Allied advances, they retired to the "Alpine Redoubt". In order to assure the continuity of operations under any circumstances, a platoon of about 70 men was formed, comprising evaluators, intercept operators and communication personnel. The platoon was fully mobile, and taking with it the most necessary records and sufficient radio equipment for monitoring and communication purposes, drove to Wagrein in the Austrian Alps. The regimental headquarters, and companies with it, followed more slowly not being fully mobile.

In Wagrein the 2nd and 3rd Battalions joined the regiment, so that with the exception of the 1st Battalion, which remained in north Germany, the regiment was re-assembled.

SIS Organization in the East

~ Fall of 1944 ~

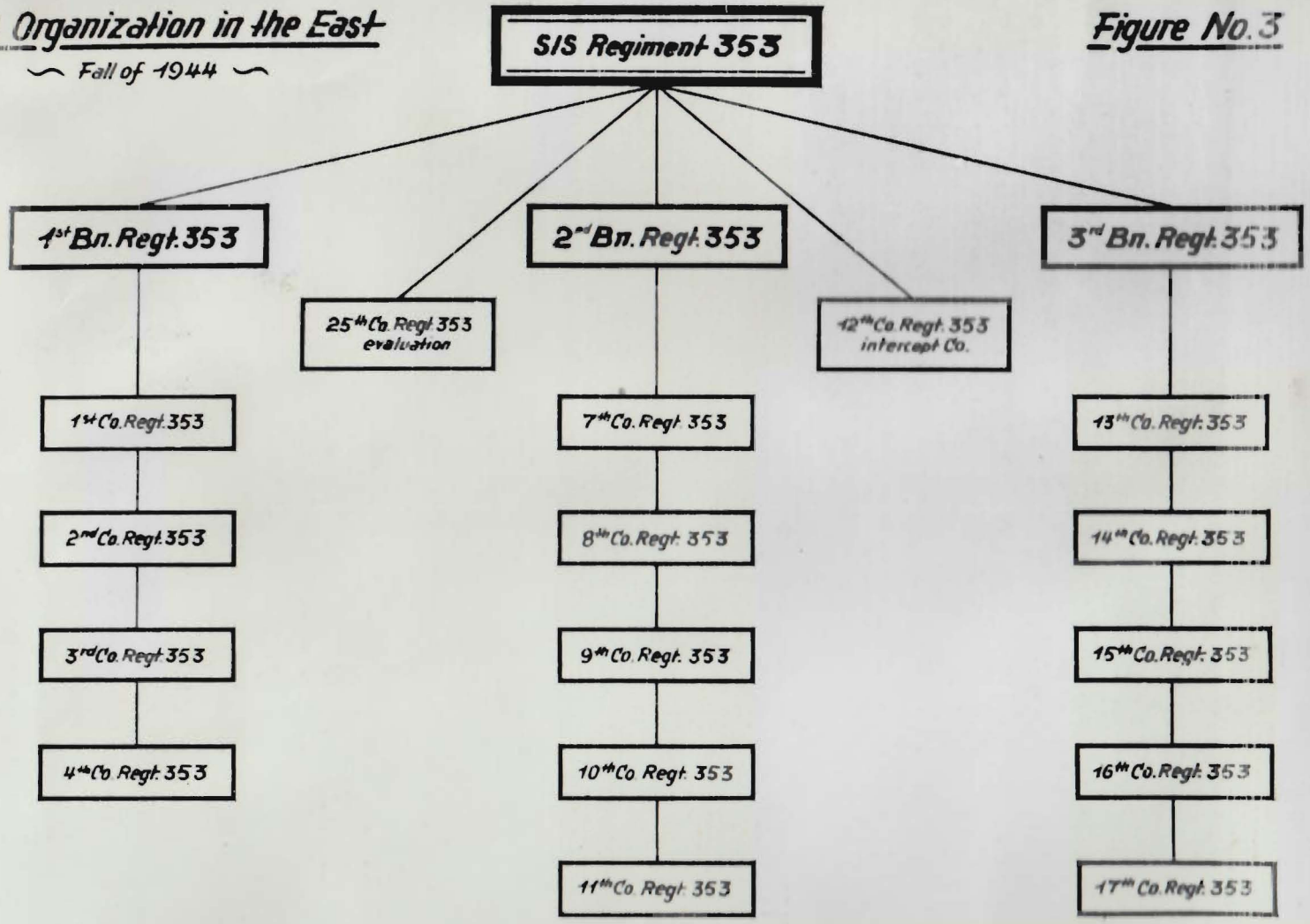
Figure No. 3



SIS Organization in the East

~ Fall of 1944 ~

Figure No. 3



After the capitulation, the regiment proceeded via Zell am See, and Lake Chiem to the Luftwaffe concentration area at Aschbach in southern Bavaria. Here its members were subsequently discharged. (See Figure No. 4 and 5).

IV. Intercept and D/F Operations.

In the fall of 1940, there was begun at Bernau the construction of a large rhombic antenna system, which was beamed to the east and southeast, for the purpose of exploring the possibilities of a central HF intercept station. It was put into operation only shortly before the outbreak of the war with Russia in 1941, and good results were obtained. Since, however, the intercept operators of this station were being used by other SIS stations and companies it was never fully manned.

The distribution of intercept receivers by type for the various monitoring tasks was made on a basis of the preferences of the individual SIS units. It proved most advantageous, wherever possible, to assign a complete monitoring mission to a single company or out-station.

Great use was found for the HF D/F, A-10F (Adcock). However, for a war of movement it had to be made mobile. A good D/F base line, as well as an efficient method for controlling the operations of the D/F's, was essential to the accomplishment of the regiment's mission. Special care had to be taken in planning D/F control by radio, which of course involved the encoding and decoding of messages. Since this cryptographic work usually had to be done by the D/F operator himself, every second counted. The assignment of several targets to one D/F station proved unworkable.


NORTH SEA
NORWAY
SWEDEN
FINLAND
RUSSIA
GERMANY
Line of Withdrawel of Luftwaffe SIS in the East
Legend
Fixed SIS station or mobile company
W-Leitstelle plus two intercept cars.
W-Leitstelle plus three intercept cars. etc.
LÜBECK (1945) (Capitulation)
RÜGEN (1945)
KOBBELBUDE (1938 - 45)
RIGA (1942 - 44)
OSTROV (August 1941 - Fall of 42)
SMOLENSK (April 1942)
ORSHA (August 1943)
MINSK (Oct. 1943)
DRESDEN (Beginning of 1945)
LODZ (August 1944 - January 45)
WARSAW (July 1944)
HORN (Fall of 1944)
ASCHBACH (Capitulation)
TRAUPLITZ (Beginning of 1945)
DEBRECEN (April 1944)
BACAU (March 1944)
KRIVOI ROG (February 1943)
NICOLAYEV (April 1944)
KAMENSKOJE (April 1943)
MARIOPOL (Beginning of 1943)
ROSTOV (Beginning of 1943)
ODESSA (January 1944)
KISLOVODSK (Beginning of 1943)
CONSTANTA

Figure No. 5

V. Cryptanalysis

The problem of securing sufficient and well-qualified cryptanalytic personnel was at all times very great, since almost all messages, which on the Eastern Front amounted to an average of 1000-2000 per day, were enciphered. To meet this problem the SIS in the East attempted to produce and train cryptanalysts itself. It was found, however, that cryptanalysis is, for the most part, an inborn talent, and approximately only one-half of the personnel thus trained proved useful. The chief reason why there were never sufficient cryptanalysts available may be laid to a tendency on the part of these men to specialize in certain types of codes and ciphers. On this account also, it was usually impractical to detach cryptanalysts to the various intercept companies, which in the interests of tactical evaluation would have been greatly desired.

For the most part cryptanalysts were employed in the W-Leitstellen, or the evaluation companies, where they, as well as the evaluators, were within easy reach of the Chi-Stelle's grasp as such personnel was needed in Referat E.

New codes, as well as the new recipherment of old codes, presented constant problems which, in turn, could always be traced back to a lack of qualified cryptanalysts.

In spite of these difficulties an average of sixty to seventy percent of the intercepted two, three and four-figure messages were broken. Five-figure messages, on the other hand, often required weeks of painstaking analysis, and on such occasions were not read in any time to be of very great value.

VI. Evaluation.

1. Traffic and Log Analysis; D/F Evaluation.

The principal duties of these sub-sections were the identification of call-

signs and frequencies, and the re-construction of Russian radio networks. A corollary duty was to determine the systems used by the various Russian air armies in selecting their call-signs and frequencies, and to attempt prediction of those to be used in the future.

2. Tactical and Final Evaluation.

As in the case of traffic analysis, preliminary evaluation work was done by the fixed SIS stations and the intercept companies. Intercepted material was then forwarded to the W-Leitstellen or the evaluation companies where the traffic was evaluated, and reports prepared which were sent to the Chi-Stelle, the Luftflotten and the Fliegerkorps. Later these battalion evaluation reports were also sent to the regimental evaluation company, where they were compiled into a comprehensive report for the Chi-Stelle. The Chi-Stelle edited these reports, and passed them on to the Luftwaffe and Wehrmacht Headquarters.

VII. Signal Communication

Good signal communication is absolutely essential to an SIS organization in the field. This includes both communication between SIS units themselves, and that from the SIS headquarters or evaluation unit to the recipients of signal intelligence. These recipients may be divided roughly into two categories: higher headquarters, and tactical units. For security purposes, the use of radio must be limited as much as possible.

Experience on the Russian Front showed that the dissemination of signal intelligence from SIS out-stations to tactical aviation units had to be accomplished in a matter of minutes, and in some cases even seconds. For this reason, R/T out-stations of the SIS Regiment, East, were usually located directly on the airfields of German fighter and reconnaissance units, and had direct wire lines to the

fighter controls. The out-stations were also tied in to the teletype switchboards of the air bases in order that communication be maintained with the battalion and neighboring R/T stations. The out-stations themselves did not have the necessary means for installing their own telephone and teletype lines, and these were always furnished to them by the air base commander concerned, by order of the Luftflotte. Radio links to the battalion were also maintained as a stand-by.

VIII. Liaison With the Army SIS.

Since the external characteristics of Russian radio traffic were not sufficient means by which to identify a group of new traffic as either army or air force, it was necessary to maintain close liaison with the German Army SIS. Of primary importance was liaison between the repective traffic analysis sections, and for this purpose non-commissioned liaison officers were frequently exchanged. During such periods when contact with the Army could not be maintained because of distances involved, the Luftwaffe SIS was still able to identify traffic through the alertness of its intercept operators and traffic analysts. However, where possible, close liaison with the Army was preferable.

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PART TWO

THE NORTHERN SECTOR

By

Colonel Hans Eick
C.O., 353rd SIS Regiment, East,
Luftwaffe SIS

I. Development up to the German Invasion of Russia.

In May, 1941, Luftflotte 2 and its SIS unit, the 3rd Battalion of the Luftflotte Signal Regiment transferred from the West to Warsaw. Since this SIS unit had no experience in monitoring Russian traffic, the brunt of this responsibility was born by the fixed SIS station in Warsaw. The commitment of the Warsaw station was increased still further when W-Leit 2 was transferred to Italy in December 1941.

To reinforce the Warsaw station, which was not fully prepared to meet this task, W-Leit 1 in Bernau, near Berlin, gave up approximately one-third of its cryptanalysts and evaluators. This it could well afford to do since it had an abundance of personnel.

In the last half year of the war, the work of W-Leit 1 had attained such stature that its reports were forwarded by Referat D to the General Staff virtually without editing.

Shortly before the beginning of the war with Russia, the 3rd Battalion of LNR 1 in Bernau moved with its Luftflotte to Koenigsberg. At the outbreak of the war this battalion comprised:

W-Leit 1.

A fixed SIS station in Kobbelbude, near Koenigsberg, with several out-stations.

A small intercept and D/F station in Kirkenes.

In addition, the Fliegerkorps under Luftflotte 1 had its own SIS company, which monitored Russian air activity of interest to the Fliegerkorps. This company, however, was not very efficient since it was lacking in experienced personnel, and to a great extent had to rely upon the support of the battalion. Later it was taken away from the Fliegerkorps and incorporated into the battalion.

These various SIS units were linked to one another by wire communication. W-Leit 1 itself was only a few kilometers distant from the Luftflotte, and also had communication with the SIS station in Warsaw, and with the Chi-Stelle, and advanced echelon of which had moved to East Prussia.

Order of battle and strength of Russian air units were already known from work performed during peace-time, and all SIS people were alerted on the night of 21 June 1941 as to what they might expect to find in Russian radio traffic. However no changes occurred either in call-signs, frequencies or codes. Nevertheless, there was much chaos and confusion which was manifested in the great amount of plain text messages. This condition gradually improved, but lasted for several weeks, and can be attributed to the continuous withdrawal of the Russians. Moreover, the radio traffic was not as voluminous as the Luftwaffe SIS might have wished. The primary reason for this was the satisfactory land-line system on the northern sector.

II. Activity During the War. (See Figure No. 4 and 5)

As the German front advanced, Luftflotte 1 and W-Leit 1 moved to Dvinsk, in

Latvia, in July 1941. Since it became increasingly evident that the existing personnel and equipment were not sufficient for the task at hand, a request to increase the strength of the battalion was submitted. Augmention arrived in the middle of July in the form of an SIS company from the West. This company had had previous experience in the East in 1939, and therefore a few weeks were sufficient for it to become fully operational.

After a three-week stay only in Dvinsk the battalion moved with Luftflotte 1 to Ostrov south of Pskov. Here still another company was created out of existing personnel, so that from August, 1941 to the end of 1942, the battalion consisted of the following units:

W-Leit 1.

Two intercept companies in the direct vicinity of W-Leit 1, together with their satellite out-stations and D/F's.

The fixed SIS station in Kobbelbude.

The small SIS station in Kirkenes.

A small intercept station in Mikkeli (Finnish Headquarters), with two out-stations, one in central Finland, the other on Lake Ladoga.

The last-named SIS unit was created with the entry of Finland into the war, and lengthened the D/F base line.

Use was also made of the Finnish SIS, whose cryptanalytic work was of a high standard. The Luftwaffe SIS stations in Finland had either wire or radio links with W-Leit 1 in Ostrov. Additional D/F's were set up on the northern sector, in order to obtain more favorable cuts. Some of these were placed within the area of the central sector.

During the period of transition, by augmenting its personnel in order to meet

the increasing demands made upon it, the battalion was able to give a flawless intelligence picture of the Russian Air Force on the northern sector.

In the beginning of December 1941, owing to difficulties in administration and billeting, part of the Luftflotte (including the A-2), and with it the SIS battalion, moved from Ostrov to Riga. Here W-Leit 1 was located close by the Luftflotte, while the two intercept companies were installed in the eastern section of the city.

In the fall of 1942, W-Leit 1 was reorganized into an evaluation company and an intercept company. Likewise, in the beginning of 1943, the fixed SIS station in Kobbelbude was redesignated a company.

In June, 1944, the Luftflotte withdrew with its SIS battalion to East Prussia, to the vicinity of Kobbelbude, where the fixed SIS station was located throughout the entire period of the war. In February, 1945, enemy pressure forced the battalion to withdraw, partly by land and partly by sea, to the island of Ruegen. The German SIS stations in Finland were closed and the personnel recalled. At the beginning of April 1945 the battalion retired to Luebeck where it fell, after the capitulation, into British hands.

III. Intercept.

During the first stage of the war all efforts were concentrated on W/T interception. The general area covered by the battalion's receivers extended from the Arctic Sea to a region just north of Moscow.

In the autumn of 1942 the battalion began to take more of an interest in Russian HF R/T, since this traffic was becoming more prevalent. Two R/T out-stations were established on airfields of German fighter units, one south of Leningrad, and

the other southwest of Lake Ilmen. This was done primarily to increase the rapidity with which these units received intelligence derived from Russian fighter traffic. However, it was found from 1943 onward that careful processing of R/T traffic afforded increasingly valuable information on the strength and order of battle of the enemy air force.

When the battalion withdrew to East Prussia in June, 1944, these two out-stations were left behind. A few months later it became necessary to set up still another R/T detachment in the Kurland. Later, the two out-stations left in Russia also withdrew to this area, and continued operations even though the Kurland was cut off. Part of the personnel of these R/T detachments later fell into Russian hands.

The battalion was responsible for covering the traffic of the Russian Baltic Fleet Air Arm. To assist in this task an R/T detachment was placed aboard the German cruiser "Prince Eugen". This R/T unit followed the activities of the Russian Baltic Fleet aircraft in order to warn German shipping of impending attack. This work assumed even greater importance after the Kurland had been cut off and was relying mainly on supplies by sea.

By the fall of 1944, R/T intercept had far surpassed W/T in importance, and was supplying 70-80 percent of the intelligence obtained by the battalion. The Russian 1st, 3rd, and 15th Air Armies used R/T almost exclusively, which meant that at least one R/T out-station had to be allocated to cover each of these air armies. Good communication between these detachments and the battalion were therefore of the essence.

Russian radar stations on the northern sector were located mainly in the Leningrad-Kronstadt-Lavansaari area, and later on also along the Baltic coast,

especially in the Reval and Memel areas. Two radar intercept detachments were allocated to the battalion by the Radar Intercept Control Center in Berlin, and these units monitored Russian radar activity in the Leningrad area from April 1943 to June 1944.

In March, 1945 Russian radar stations began to use R/T for reporting purposes. During Russian daylight fighter sweeps, the fighter control stations were informed of any German fighter reaction as revealed by radar. The SIS out-stations monitoring this traffic were able to warn German aircraft of their impending danger.

IV. Evaluation.

Signal intelligence was a unique, and therefore important source of intelligence to the Luftflotte. Movements of Russian units, occupation of airfields, number of serviceable aircraft, and location of supply dumps were determined from the monitoring of point-to-point traffic. Russian offensive intentions were also determined from traffic intercepted on these networks. Thus, for example, a Russian order to bomber units was intercepted ordering an attack on Shavli in Lithuania, where an entire German Panzer Army had been immobilized through lack of fuel. The SIS reported this to the Luftflotte, which provided fighters for the interception of the Russian bombers, while JU 52's dropped gasoline containers to the encircled army. Such SIS successes occurred from time to time.

With the stabilizing of the northern front the volume of Russian radio traffic shrank. Nevertheless a substantial amount of messages still were intercepted daily. SIS was almost the only source of intelligence on the enemy situation, since agent's reports, and other forms of intelligence were for the most part lacking.

On occasion, the SIS battalion furnished intelligence to the Luftflotte A-2 which went unheeded. For example, in the fall of 1941, when the Germans were striving to effect a junction with the Finns at Tichvin, certain radio characteristics appeared in traffic on this sector which two weeks previously had been noted in traffic from Siberia. This was taken by the SIS as an indication that Russian troops had been transferred in this short interval from Siberia to a sector south of Tichvin. The German Command maintained that this was impossible, and did not react to this intelligence. The Russians attacked in great force and won a significant victory. The railway between Leningrad and Moscow was thus liberated by the Russians, and the Germans were forced to take up positions on the Volchov Front, leaving the "hedgehog" redoubt of Demyansk to its fate. The junction with the Finns never materialized.

The SIS station in Kirkenes which suffered with the Finnish SIS stations from auroral interference in its radio reception, nevertheless derived satisfactory intelligence for the German headquarters on the Murmansk Front, especially that concerning convoys to and from Archangel. The latter were reported to the bomber units and to the Navy.

Similarly successful were the Finnish SIS stations in monitoring the Finnish Front, and the northern sector of the Leningrad Front. The Finnish and German SIS worked in closest co-operation.

V. Liaison.

Even before the start of the war the commanding officer of the battalion had maintained unofficial liaison with the Army and Navy SIS. Frequent visits were exchanged which resulted in a reciprocity of intelligence. This liaison became

closer as time went on, and all three branches of the Wehrmacht were able to give each other very important intelligence, and avoid unnecessary duplication of work. Naturally close liaison was also currently maintained with the other Luftwaffe SIS battalions on the Eastern Front.

VI. Prisoner of War Interrogation.

Since the SIS battalion had a considerable number of Russian speaking interpreters, who knew the Russian mind and its weaknesses, permission was secured for these interpreters to be present during interrogation of captured Russian pilots and radio operators. As the prisoners had been taught by Russian propaganda to expect the worse possible treatment, considerate handling of them often brought results. Good food, a glass of vodka, and cigarettes soon made them loquacious. The only drawback was that they did not know much, since the Russian policy, in interests of security, was that each man should be given only that information needed to perform his individual job. Since only the formation leaders had radio transmitters, and the navigator of the leading aircraft performed his specialty for the entire formation, the other crew members knew nothing. The radio operator also possessed no knowledge of anything but his radio set. Codes and ciphers were held in a safe by an especially appointed officer and only made available to the formation leaders shortly before take-off. By order, radio was to be used as little as possible; navigational aids did not exist. Therefore relatively little intelligence could be obtained on Russian signal techniques. Prisoner of war statements, however, gave quite a complete picture of ground organization, composition of tactical units, etc.

VOL. XI

PART THREE

THE CENTRAL SECTOR

By

Major Hans Windels
C.O., 2nd Bn., 353rd Regiment, East,
Luftwaffe SIS.

I. Organization and Development.

Before the start of the Eastern campaign, the fixed SIS station in Warsaw, W-21, worked on traffic of the Russian Air Force. When war in the East became imminent, W-Leit 2 also was moved to Warsaw with Luftflotte 2 as reinforcement for the expected military operations. Up to the time of the move, W-Leit 2 had worked on British air traffic exclusively. Since it was inexperienced in Russian traffic, the full monitoring burden fell upon W-21 during the first months of the great offensive in the East. Conditions were made very difficult through lack of sufficient personnel and transport, as the campaign was then moving very fast.

W-21 and W-Leit 2 were moved from Warsaw to Minsk and later (October, 1941) to Smolensk. In December, 1941, Luftflotte 2 and its SIS battalion were withdrawn and sent to Italy.

W-21 and the SIS company of Fliegerkorps V had to cover all of the central sector Russian air traffic during the severe winter of 1941-1942, under the most difficult conditions. This coverage was performed from Smolensk. Due to difficulties in administration of the SIS company of Fliegerkorps V and W-21, it was

decided to combine them and form the SIS Battalion, East. At this time Fliegerkorps V changed its name to Luftflotte, East.

The SIS battalion furnished all its intelligence reports to the A-2 of the Luftflotte, and worked directly under the Chief Signal Officer of the Luftflotte Staff.

In Smolensk there was also a German Army SIS regiment. This regiment, in addition to its other duties, also covered Russian Air Force traffic. The coverage of air traffic by this regiment was even greater than that of the Luftwaffe SIS. Every effort was made by the battalion to rectify this matter, and in the course of four months this was accomplished through additional intercept personnel, transfer of the intercept site to an area of better reception, retraining of personnel, and reorganization of and closer co-operation between the evaluation, deciphering and intercept elements. In September of 1942, the Army SIS ceased monitoring Russian Air Force traffic, and all intelligence reports on the Russian Air Force were handled by the battalion.

The coverage of the battalion increased so rapidly that, in a very short time, it was unable to cover all commitments without having again to increase personnel and equipment. These commitments arose from air-to-ground traffic, which up to this time had not been covered. It necessitated the creation of a D/F network, R/T out-stations, and a fighter warning service for German long range reconnaissance. The ensuing requests for additional personnel and equipment were granted, in most cases by the Luftflotte in consideration of the importance of the mission and the value attached to SIS reports. At this time the battalion comprised two intercept companies and one evaluation company. Only one of the companies was fully mobile; the other two had only a minimum of vehicles.

When the bulge in the German line in front of Smolensk was eliminated by the Russians, the battalion, together with the now renamed Luftflotte 6, moved to Orsha in August of 1943, and fourteen days later again moved, this time to Minsk.

In Minsk the battalion was ideally located in a large school, and enjoyed excellent radio reception. The move was made in echelons, and coverage of Russian traffic was carried on during the move. The battalion functioned very smoothly, and took very little time to become completely operational at the new location. (See Figure No. 4.)

In October, 1943, in Minsk, the battalion received a fourth company. This intercept company was formerly with a Fliegerkorps on the southern sector, and was fully mobile. The addition of this intercept company enabled the use of fifty-five receivers on Russian W/T traffic.

Each of the companies in the battalion had its allotted work. The 1st Company was charged with all deciphering and evaluation. The 2nd company was assigned coverage of Russian Air Force point-to-point networks. Between 500-900 messages were intercepted daily, which were processed by the 1st Company and read with 60-70% success. The 3rd Company monitored Russian long range bomber traffic. For fighter traffic R/T out-stations of this company were attached to German fighter units and worked at the latters' bases. The 4th Company monitored the Russian air defense units (PVO). This involved W/T and R/T traffic of the Russian fighter arm defending critical railway junctions and industrial centers. Also monitored were the flak and air raid warning networks, radio beacons, and radar. The R/T out-stations also warned German long-range reconnaissance aircraft of the approach of Russian fighters. The work in Minsk continued for about ten months, and was very successful.

In June, 1944, the battalion moved with Luftflotte 6 from Minsk to Warsaw, and in August to the vicinity of Lods. While there, a fifth intercept company was added, and the battalion was fully employed for another six months. (See Figure No. 5).

The chain of command of SIS battalions, generally, was changed several times during the course of the war without attaining, however, a satisfactory solution. Even the final reorganization into SIS regiments, with separate operational and administrative commands over them, did not prove at all successful.

The A-2's of the Fliegerkorps and Luftflotten several times attempted to have the SIS units serving them placed under their control, rather than under that of the Signal Corps, since these units were their prime source of intelligence. The realization of such a plan, which naturally met with stiff resistance in signal quarters, might have had a detrimental effect on the work of SIS, since a not inconsidable part of this service devoted itself to the interests of combat units rather than to those of the A-2's. Moreover, an SIS battalion with its radio receivers, D/F's and other signal equipment, would have proved too much of a technical problem for an A-2.

The SIS Battalion, East, grew, with the increased volume of Russian traffic, but from the very first was always able to solve the intricate problems presented. Lack of caution was in no small way responsible for many problems, and the following illustrates the point. A certain German general, in a public interview, told the press that his success in breaking out of an encirclement by Russian troops was directly attributable to knowledge of the disposition of opposing Russian forces, obtained from signal intelligence. The effect of this interview was directly felt by the SIS, as such declarations inevitably brought about a

complete change of Russian codes, etc. Despite these difficulties, the SIS was able to surmount all problems, owing largely to the fact that from the beginning it had followed the enemy most closely, and could again pick up the threads, following even drastic changes.

The battalion was always given the utmost consideration in its equipment and personnel needs, by the Luftflotte. Several times the Luftflotte commander himself came to the assistance of the battalion, owing to his great interest in the work.

II. Operations

1. Intercept Cover

It was found that by giving the intercept companies a special area and type of enemy traffic to work on, they became highly efficient and developed a real spirit of competition that proved most useful in this work.

The following types of traffic were covered:

a) Point-to-point traffic of the Russian air armies. On the central sector there were 25 W/T receivers for the Russian point-to-point networks; 15 search sets were used to locate new and changed frequencies. One receiver was used to cover a small group of rather unimportant networks. This mission was performed by one W/T intercept company, which did not have its own evaluation section.

b) Point-to-point traffic of the Russian air defense units. This traffic comprised networks of Russian fighter divisions, flak, and air raid warning service. There were 10 receivers of another W/T company allotted to this task. This company also covered the R/T of the Russian defensive fighter arm, and had small detachments of three or four sets, manned by Russian-speaking oper-

ators, at three air bases used by German long range reconnaissance Gruppen. In addition, the company covered Russian radar and radio beacons, and was equipped to do its own evaluation.

c) Air-to-ground traffic (W/T) of Russian long range bombers (ADD). Twenty receivers were allotted to this traffic during periods of activity, and an additional 10 receivers were used to cover the point-to-point networks on which operational orders were transmitted. These duties were performed by a third W/T intercept company, which also had its own evaluation section.

d) Air-to-ground R/T traffic of Russian fighters and fighter bombers. The company that performed this work was prepared to send teams of men and sets to advanced German fighter airfields. These teams, possessing six radio sets and Russian speaking operators, were sent to fighter Gruppen, and worked directly with these units. Their reports were also sent to the battalion evaluation company for incorporation in the overall intelligence picture.

The battalion had a total of 120 receivers, the majority of which were always in operation.

For W/T intercept the radio receiver, type "A", was used; however, there was a shortage of this type, so the type "B" (pack set) was also used. Both these sets were standard Luftwaffe equipment. The type "B" was not as efficient as the "A", in that it did not possess selectivity of the latter. For R/T intercept, the HF "C" receiver was used. There were a few power-operated "K" receivers used on this sector, but these sets were not generally liked by the operators. It was found that better results were obtained by letting the operators pick their own type of set to work with, and this was done where possible.

Most of the radio sets were intended to be operated with dry cell batteries, but for practical reasons these were converted to wet cell battery operation by 100 volt storage batteries taken from vehicles. Two batteries were used for each set, one being charged while the other was being used.

2. D/F Operations

The battalion had five W/T D/F's, six R/T D/F's, three M/F D/F's, and three radar intercept D/F's. This number was not deemed adequate for the work at hand.

3. Evaluation.

a) Traffic and Log Analysis; D/F Evaluation.

These sections, grouped together and headed by an officer analyzed W/T traffic and call-signs. They also assigned frequencies to be covered by the intercept units.

b) Cryptanalysis

The deciphering section was also headed by an officer. It deciphered intercepted messages and developed new cryptanalytic techniques.

c) Contents Evaluation.

This section analyzed the contents of messages and maintained files on all information referring to order of battle, location of airfields, personalities, etc., and passed this information on to the final evaluation section.

d) Final Evaluation.

This section compiled all reports issued by the battalion.

4. Signal Communication.

A good communication system is most essential to SIS work, in that it provides the means for immediate dissemination of all pertinent information. For security purposes the use of radio must be limited. Excellent wire communication existed from the out-stations to the evaluation company, and from the battalion to higher headquarters. Each out-station had a teletype link with the battalion, as well as a stand-by radio channel. The battalion was equipped with a large telephone switch board, with trunk service to out-stations and higher headquarters. The battalion had a number of direct lines, among which were lines to Luftflotte 6, SIS Regiment, East, Referat D of the Chi-Stelle, and to the nearest Luftwaffe exchange.

The battalion had its own teletype installation with both standard teletype-writers and teletype-cipher machines. These were tied in to the Luftwaffe exchange, and to the special SIS teletype network. The latter network provided communication with the Chi-Stelle, regimental headquarters, and the other two battalions of the regiment.

During raids of the Russian long range bombers, permanent telephone connections were established to the other SIS battalions over a distance of 300-500 Km., which were maintained for the duration of the raid.

A battalion signal officer was appointed to be responsible for the smooth functioning of all signal communication, including the distribution of cipher systems. He was usually the commanding officer of one of the intercept companies, since these companies possessed the greater part of the signal equipment.

A technical inspector of the battalion staff, in conjunction with the radio

repair sergeants of the intercept companies, was responsible for all signal maintenance and repair.

5. General Comments.

a) It was found that operations were performed most efficiently when the battalion could be centrally located and long lines of communication were not needed to out-stations, D/F stations, higher headquarters, etc.

b) Moves of the battalion always adversely affected operations, and it would have been more advantageous to allow the battalion to remain in one location, and provide special circuits and an SIS liaison officer to the A-2 of the Luftflotte, instead of insisting that the battalion be in the immediate vicinity of the Luftflotte.

III. Liaison.

1. With Neighboring Battalions of the SIS.

Close liaison between battalions was of extreme importance as there was always an overlapping of intercept cover. By proper liaison many important points were cleared up, and valuable information exchanged on new traffic, unlocated stations, cryptanalytic solutions, etc. An example of the importance of immediate liaison was found in those cases where Russian bombers flew through more than one battalion sector.

2. With Combat Units

a) Bombers

When Russian defensive night fighter activity commenced in the summer of 1943, one of the battalion's out-stations began to monitor the R/T traffic involved, in order to warn German night bombers of impending Russian attempts at

interception. However, the Russians made very little progress in the development of GCI control, and even by the end of the war had not mastered its intricacies.

Most of the traffic intercepted by the R/T out-station proved to be unimportant training traffic. However, this traffic did serve the purpose of providing an insight into the clumsy attempts by the Russians to vector their night fighters through radar control. Collateral intelligence also bore witness to their inefficiency.

b) German Night Fighter Units

Co-operation with the German night fighter arm on the central sector likewise bore good results. The SIS battalion maintained a liaison officer at the night fighter control who received all signal intelligence data relating to fixes, course, strength, and probable targets of Russian bombers. Considering the paucity of Russian long range bombing missions, the results obtained were quite satisfactory. For example, during a Russian attack on Tilsit which was very closely followed by SIS, German night fighters were able to shoot down 14 Russian bombers out of 100 that participated in the raid. During their next attack the Russian bombers maintained the strictest radio silence, an indication that they realized the reason for their previous losses.

c) Long Range Reconnaissance Units

A fighter warning service was maintained, similar to those in the West and South, to advise reconnaissance crews of impending attack from Russian fighters. The source of intelligence for this service was the prolific Russian fighter R/T traffic, but compared to the fighter warning services in the other two theatres, it was rather primitive.

d) Day Fighters

As it was elsewhere, the support of German day fighters was one of the primary functions of SIS on the central sector of the Eastern Front. For this reason, a policy of close co-operation was carefully nurtured on both sides. SIS out-stations, commanded by an officer, and attached to fighter Geschwader or Gruppen, usually maintained their operations room in the same building as the fighter control. By means of direct liaison between the commanding officer of the SIS unit and the fighter control chief, all operational matters to which signal intelligence might pertain were discussed. Signal intelligence served to instruct German fighter pilots on the combat tactics of Russian fighters and fighter bombers.

3. With Luftflotte Headquarters.

In the East it was particularly difficult for the A-2 of the Luftflotte to obtain information on the enemy situation. Reliable agents' reports were few and far between and photographic intelligence was seldom accurate, owing to excellent camouflage of which the Russians were masters. Moreover, it was dependent on the weather and toward the end of the war was rendered more difficult by a stiffening of the Russian air defense. That the A-2 was, nevertheless, able to boast an accurate picture of the enemy situation at all times was the result of the work of the SIS. It is only natural, therefore, that everything conceivable was done to further close liaison between the A-2 and the SIS battalion.

The battalion sent one of its most capable junior officers to the office of the Luftflotte A-2 as an SIS liaison officer. The latter usually had a direct telephone line to the battalion's final evaluation section.

To assist SIS evaluation work, the A-2 included the SIS battalion in the distribution of all daily reports and appreciations prepared by his office. These included:

A list of all missions flown by the Luftflotte, including results.

A list of all hostile aircraft plotted by radar and visual observation.

Coverage of airfields by photo reconnaissance.

Locations of radio stations and radar installations from photo reconnaissance.

A report of the ground situation as issued by the Army.

PWI reports of Russian air crews.

Russian airborne radio operators were interrogated by the battalions at first hand, and all captured documents dealing with Russian signal matters were sent to the battalion.

The furnishing of all this important collateral intelligence to the SIS battalion greatly facilitated its evaluation work. Thus, those situations were obviated where the SIS evaluation section might wrack its brain over a problem which had already been clarified by accurate PW testimony. Also the analysis of Russian radio traffic, intercepted in conjunction with a German attack, was simplified if exact details concerning this German attack were available to the evaluation company.

On the other hand, all intelligence obtained by the battalion was passed to the A-2 by the SIS liaison officer. At 1800 hours daily a secret SIS report was prepared by a special evaluator. This report was sent by courier to the Luftflotte where it was available for the Commanding General's war room conference, which took place each evening. Messages of tactical import, of course, were passed to the Luftflotte as soon as they were obtained. On the basis of these daily reports, fortnightly reports were prepared which emphasized changes and new developments in

the enemy situation during the period. The daily SIS reports, together with other intelligence available, formed the basis for an enemy intelligence report prepared by the A-2, and distributed to tactical units without revealing the sources of the material. Eighty percent of the contents of this report was derived from signal intelligence.

The daily and fortnightly reports of the battalion were also sent by teletype to regimental headquarters and to Referat D of the Chi-Stelle.

IV. Conclusions.

SIS in the East was the prime source of enemy intelligence. Reports of the movement of Russian air units, special concentrations, and warning of impending attacks could always be timely and accurately stated. There were no important Russian attacks the preparations for which were not recognized early by the SIS.

Strength, availability of fuel and ammunition, serviceability of airfields, as well as impending attacks on railways, bridges, etc., were determined from decoded messages. The SIS on several occasions was able to predict in advance the time and course of American heavy bomber formations flying over the Russian lines, and also at which airfields these units would land, e.g., Poltava.

The work of the R/T out-stations with German fighter Geschwader was alone responsible for the shooting down of over 1000 Russian aircraft on the central sector.

Reconnaissance crews often called the battalion by telephone after landing, and expressed their thanks for the service rendered by the SIS, stating that without this assistance they would have been unable to complete their mission and return to base safely.

The success of the SIS on the central sector of the Russian Front was based on the esprit de corps of its officers and men, the majority of whom were highly trained specialists doing work in which they were absorbed. Care was taken to provide the personnel with appropriate rest periods and diversion, in order to maintain morale.

During the first period of the war, reports from the SIS seemed so radical to higher commanders that they were distrustful of them, and made only the most cautious use of them. Later this situation changed; they came to believe in the SIS implicitly, and hailed it as the most reliable and opulent source of enemy intelligence.

PART FOUR

THE SOUTHERN SECTOR

By

Captain Wadim Herold,
C.O., 3rd Bn., 353rd Regiment, East
Luftwaffe SIS

I. Organization and Development.

1. Origins in the East.

The development of the Luftwaffe SIS in the East began in 1936 with fixed intercept and D/F stations, which were manned by civilian personnel. The first stations in the East were Glindow, near Berlin, and Pulsnitz, near Dresden. Later on, Kobbelbude, near Koenigsberg, and Breslau were added. The first operational territories were Czechoslovakia, Poland and Soviet Russia. Referat D of the Chi-Stelle in Berlin was in charge of the SIS of the East.

2. Development on the Southern Sector to the Outbreak of the Russo-German War.

After the "Anschluss" with Austria, the Austrian SIS was taken over by the Luftwaffe and incorporated into its Signal Intelligence Service. Austrian personnel was used mainly at two new stations, W-Leit 4, in Vienna and W-14, in Hirschstaetten, near Vienna. SIS stations in Hungary were organized in October, 1938, under the cover name "Operation Stephan". In the spring of 1939, all SIS stations were organized as a battalion under W-Leit 4. After the forming of the Luftflotte 4 Signal Regiment, the 3rd battalion of this regiment became an SIS battalion. At the beginning of the war, the following units comprised the battalion:

W-Leit 4, the evaluation company.

1. SIS Company (mobile)

3 Fixed SIS stations.

The SIS company was reinforced by certain experienced personnel from the fixed SIS stations. There was no central training of SIS intercept operators. The battalion, therefore, instructed recruits during their training for the special tasks of the SIS. From this newly trained personnel a second SIS company was formed in spring of 1940. Later on, an SIS school for the battalion was maintained in Premstaetten, near Graz, for the training of replacements. Radio operators allotted to the battalion received their special training there. The battalion covered the Soviet Union, Czechoslovakia (until March, 1939), Jugoslavia, Rumania, Greece and Turkey. All these monitoring operations, with the exception of Turkey which was handled by a company in Constanta, were done for Luftflotte 4. The main points of the observation centered around the impending military operations.

From Czechoslovakia, weather traffic, safety service networks, and some artillery fire-control traffic, were intercepted. The order of battle of the Czech Air Force and the extent of occupation of their airfields were always known. After the occupation of Czechoslovakia, it was interesting to note that the Czech SIS had deciphered a Wehrmacht code (Kammschluessel), and was reading it easily. Consequently, there followed a greater limitation in the use of Wehrmacht low-grade codes.

In Rumania, air force traffic and the police networks were monitored. The police code was broken, but the reports contained therein were of no interest. Monitoring of Rumania ceased in the spring of 1941, and was not resumed until

the defection of that country in summer of 1944.

The monitoring of Turkey was a success. Strength, and deployment of its air forces were known, and its codes read. Turkish R/T traffic was also intercepted.

Special attention was paid to the Soviet Union, and very early the results of this monitoring gave valuable information to the A-2 of Luftflotte 4. When the war started, the SIS on the southern sector was prepared, and lived up to all expectations.

II. Operations.

1. The War in Poland and the Balkans.

These campaigns saw no concerted action on the part of the whole battalion. After completion of the campaign against Poland, one company was attached to Luftflotte 3. It returned to the battalion at the beginning of the war with Russia.

a) Polish Campaign.

No change took place in the fixed SIS stations. One mobile company, and a special detachment of the Chi-Stelle, were used in Poland. The results were meagre. The weather and safety service networks revealed little intelligence other than which airfields were being used. Sometimes artillery fire-control traffic was intercepted on W/T or R/T.

b) The Campaign in Jugoslavia.

The Jugoslavian Air Force was monitored by two fixed SIS stations and one company. They won the first successes for the SIS in the Southeast. The Jugoslavian Air Force code was known, and all traffic could be read during the entire campaign. As a result of SIS efforts, all Jugoslavian operations were

known by the Luftwaffe High Command sufficiently in advance to take counter-measures.

c) The Campaign in Greece.

One fixed SIS station and one company, reinforced by the SIS company of Fliegerkorps VIII, monitored Greece. The Greek Air Force codes were known, and operations were successfully covered.

d) In summarizing, it can be said that in all of these campaigns the preliminary intelligence furnished by the SIS was the latter's prime contribution. During the campaigns the SIS also furnished valuable information to the High Command, and it became evident, despite the shortness of the campaigns, that SIS was an important and indispensible intelligence agency.

2. The War Against Russia

The mission of the battalion, at the beginning of the campaign, was to monitor the Russian Air Force in the area of Luftflotte 4. The following SIS units were used:

W-Leit 4.
Four SIS companies.
One fixed SIS station.

The battalion also had operational control of the SIS companies of the Fliegerkorps (these Fliegerkorps companies were assigned to, and moved with the Fliegerkorps, and this caused many disturbing situations). The request of the SIS to incorporate these Fliegerkorps companies into the SIS battalion was met by the strongest resistance on the part of all the Fliegerkorps, and did not materialize, on the southern sector, until the summer of 1944.

At the beginning of the war, the battalion had 90 W/T receivers in operation, which were quite sufficient. The geographical dispersion of the companies of the battalion made centralized control very difficult. For this reason all mobile companies of the battalion were concentrated in Nikolayev in September, 1941, and remained with Luftflotte 4 for the rest of the war. The battalion moved from there to Mariopol in the summer of 1942, and from there, in turn, in the same year, to Kislovodsk. Due to the impractibility of administering the companies located near Rzeszow and Constanta, because of the distance involved, they were transferred to the Chi-Stelle battalion. During the German retreat, the battalion moved back to Mariopol in January, 1943; a month later it moved to Krivoi-rog, and in April, 1943 to Kamenskaia, to insure better communication with the Luftflotte. By the fall of 1943, it was back to Nikolayev. (See Figure No. 4 and 5).

The SIS battalion of Luftflotte "Don", which had been activated in the fall of 1942, was dissolved in December, 1943. One of its companies was temporarily attached to the SIS battalion of Luftflotte 4. By February 1944, the battalion had reached Odessa, but enemy pressure required a further move to Bacau, Rumania. Communication difficulties prompted another move to Debrecen, Hungary, in April, 1944. Two SIS companies of the Fliegerkorps, and the old company in Constanta, were returned to the battalion in the summer of 1944. Frequent air attacks forced the battalion to withdraw to Horn, near Vienna. One company was left with the Luftflotte. This was done to assure immediate intelligence to the Luftflotte so that it could undertake prompt countermeasures as required. Had the company moved with the battalion, this service could not have been rendered, as communication over long distances was most difficult and frequently disrupted. At the end of

April the battalion moved to Muenzkirchen, near Passau. The last move was to Teuplitz, Styria, on 4 May 1945, where operations ceased at 1200 hours on 8 May 1945.

3. Details of Operations.

a) Interception, General

The monitoring of fixed frequency bands, at first allocated to each receiver, proved impractical and was very soon abandoned. Thereafter each operator was given a definite network to cover. This enabled the operator to recognize a network by the characteristic tone of the enemy transmission, and "fist" of the operators, even though the frequencies and call-signs had been changed. This considerably facilitated the work of the traffic analysis section. Search receivers were operated over certain frequency bands. The monitoring of radio beacons and long range bomber formations was done with receivers assigned especially for this work.

b) Direction Finding.

At the beginning of the war with Russia, there already existed a fixed D/F network, which, however, soon proved inadequate and had to be replaced. By use of the mobile Adcock (A-ADF), which could be moved according to requirements, a good D/F base line was speedily established.

In order that this network function efficiently, a system of control had to be devised. In the beginning, every D/F worked independently, being assigned its targets by the nearest intercept station. This resulted in line bearings only being taken, and, in consequence, definite fixed were very rare. It was soon found that centralized control of the D/F's had to be brought about in order to achieve better results. Radio communication was established to the D/F stations, since wire communication was technically impossible. The battalion assigned targets to

the D/F out-stations, which reported the bearings back to the battalion. Despite some successes, these D/F control procedures were not up to the standard required. The battalion therefore worked out a new D/F control procedure, which later came to be used over the whole Eastern Front. Targets averaged approximately 300 per day, resulting in about 80 useful fixes. The D/F control procedure proved especially useful in D/F-ing approaching enemy formations.

In the fall of 1944, the D/F out-stations received an additional Adcock each. The use of two D/F's had the following advantages:

1. A greater degree of accuracy.
2. Point-to-point and air-to-ground traffic could be covered at the same time.
3. One D/F could work at all times despite frequent moves.

The D/F-ing of R/T traffic was done at first by HF close-range D/F's, of Czech manufacture, and by the German PN 57N, neither of which was successful. Later on, Adcock installations were satisfactorily used in R/T D/F-ing. The R/T D/F stations were manned by personnel from the SIS companies of the Fliegerkorps. The R/T intercept stations of the battalion were also equipped with Adcocks. Speedy operation was particularly essential because of the brevity of enemy fighter and fighter bomber missions. Transmissions of D/F results by W/T was too slow. Telephone communication between out-stations became necessary, and it was established by the Fliegerkorps or Luftflotte.

The battalion had no M/F D/F's. The safety service D/F detachments of the Luftflotte provided any necessary bearings on Soviet radio beacons. Requests for bearings were transmitted on W/T to the individual D/F detachments by the safety service control. Non-commissioned officers, on detached service from the battalion,

directed the D/F network, and performed the evaluation of results.

c) R/T Interception.

R/T interception on the southern sector of the Eastern Front was not intensively pursued until the spring of 1943. Previous intercept attempts against the Russian Air Force met only slight success in contrast to the northern (Leningrad) and central (Moscow) sectors, where large volumes of R/T traffic (air-to-air and air-to-ground) permitted successful operation. Russian fighter and fighter bomber formations in the south were poorly equipped, and in the beginning many missions were flown without any radio equipment.

Luftwaffe R/T intercept out-stations on the Crimean Peninsula, and in the Caucasus, had only insignificant success. Russian ground forces, on the other hand, used R/T a great deal, and this traffic was monitored by the intercept companies of the German Army. Only upon request of higher headquarters did the SIS units of the Luftwaffe monitor Russian Army R/T, as, for example, during the Kerch offensive. The first fighter units of the Russian Air Force to use R/T to a considerable extent operated over the Kuban bridgehead in May, 1943. These aircraft were equipped with transmitters and much air-to-air and air-to-ground traffic took place. Here SIS R/T interceptors on the southern sector had their first real success. The out-stations were located on the airfields of fighter units. The strength of the out-stations varied, although, as a minimum, four receivers generally were employed. Evaluation was undertaken in the fighter control center and findings immediately passed on to the duty officer. The battalion central evaluation section collected all reports, and, based on research and analysis, gave predictions of future enemy activity to the out-stations. Traffic data were compiled for weeks in advance and given to the out-stations.

d) Radar Interception.

Radar interception started in the summer of 1943, as the enemy's intention to increase his use of radar was anticipated. Successes were insignificant, as the Russians had not kept pace with the development of radar. Some installations were plotted however. In some Russian radio traffic, radar installations were referred to as "Americans". It was arranged that additional radar intercept-coverage was to begin in July, 1944, from Rumanian territory. The collapse of Rumania prevented this, and the installation was destroyed before the German retreat. So, interception was not further augmented as the small number of Russian radar installations did not warrant the effort.

e) Traffic Analysis

The operation of the intercept receivers was directed by the traffic analysts. Close-co-operation was necessary between the intercept operator and the traffic analyst. The assistance of the operators in reconstructing and diagraming enemy networks was very successful. Such work encouraged the operators to take an active interest and it also helped the analysts. The tasks of the traffic analysis section were:

To record the radio characteristics of the individual Russian air armies.

The identification of enemy radio networks and their interrelationship.

The identification of call-signs, and reconstruction of call-sign lists.

f) Cryptanalysis

Cryptanalysis was centralized, and was performed at the battalion headquarters, except in the case of the SIS companies of the Fliegerkorps and special independent SIS detachments, which had small cryptanalysis sections of their own.

The cryptanalysis section at the battalion headquarters comprised 50-60 persons. All codes, with the exception of the 5-figure code could be deciphered, if sufficient depth of traffic were available. A great number of codes were used on the southern sector of the Eastern Front, and they were mostly based on the system of a code reciphered with a simple substitution cipher. During the course of the campaign, difficulties in breaking these codes were aggravated by the use of variants, unstereotyped messages, and various types of recipherment. Nevertheless, the possibility of solution always remained.

In matters of cipher systems on the southern sector, in fact in the radio traffic taken as a whole, the influence of the Russian signal officers was keenly felt. Well disciplined radio operators, complicated codes, and cleverly conceived procedure signals characterized a good signal officer, as was demonstrated in the case of the 5th and 17th Russian Air Armies. Complicated codes even made it difficult for the enemy himself, resulting in frequent requests for servicing of messages, involving repetitions and the re-enciphering of the same messages in different systems. All of this facilitated SIS cryptanalytic work. In the southern sector, old codes which had not been used for some time were often re-introduced with a new recipherment system. It was not possible to recognize such codes immediately. Only by breaking the recipherment and reconstructing the code book was the old code again recognized. Machine ciphers occasionally appeared on the southern sector, but owing to the small depth of traffic, were not analyzed.

g) Prisoner of War Interrogation and Captured Documents.

Testimony of prisoners was not used as a basis, but only as a confirmation of SIS reports. A non-commissioned liaison officer worked with the PW interrogation section of Luftflotte 4 to screen all material of value to the SIS.

Prisoners of special interest, particularly radio operators, were sent directly to the battalion by order of the A-2. Captured crews were interrogated in some cases by personnel of the R/T out-stations, in order to obtain the promptest possible information on frequencies and call-signs. SOI were of particular interest to the SIS, and captured enemy aircraft were the best place to find them. Standing orders of Luftflotte Headquarters required all units to examine captured enemy aircraft for SOI, and to forward them to the nearest SIS station. Scrap-paper and note books of crew members often contained important signal and code data which were not supposed to be taken along on flights. The aircraft radio transmitters were especially interesting because a list of the crystal-controlled frequencies often appeared on the face plate.

Little was known of the Russian Signal Intelligence Service. It existed, however, and was kept highly secret. Scarcely any captured radio operator knew anything about it. Once a member of the Russian SIS was captured in the area of Luftflotte 4, but he knew very little. It was known that German radio traffic was intercepted, D/F'ed and evaluated; cryptanalysis efforts had meagre results, and were kept very secret even from the rest of the Russian SIS personnel. German R/T was intercepted and made available to the Russian fighter commands. A large Russian SIS intercept station was supposed to have been located in Tuapse on the southern sector, and a school existed in Odessa where SIS personnel underwent a two-year training course. Some documents of the Russian SIS were brought in by a German Army SIS company during the Kerch offensive in 1942. They shed very little light on the general picture. The captured documents showed that, in general, the Russians worked on the basis of traffic analysis and D/F evaluation only. Results were found to be correct in part, since frequencies and call-signs of German and Rumanian units were found. The locations of higher German and Rumanian commands, apparently based upon D/F fixes, were inexact or entirely wrong.

h) Final Evaluation.

All material was analyzed in this section, and information of tactical import passed immediately to higher headquarters as flash reports. Daily and fortnightly reports, more strategic in nature, were also prepared. The following were the duties of final evaluation in detail:

Evaluation of clear text and deciphered messages.

Gridsquare identifications.

Evaluation of collateral intelligence.

Maintenance of a situation map and extensive files.

Daily and fortnightly reports.

Liaison officers and non-commissioned officers from the Army SIS assisted in final evaluation, and maintained maps of the ground situation based on Army reports.

i) Signal Communication.

The establishment of communication on the southern sector was a difficult problem, since the Russian wire systems which were taken over were very inadequate. In consequence, standby radio links were maintained by the battalion to its companies and out-stations. An SIS command network linked the battalion with Referat D, and the SIS battalions on the other two sectors. The battalion also was a subscriber to the command network of Luftflotte 4, and was authorized to break in at any time with messages of operational priority. Later the battalion was given direct point-to-point communication with Luftflotte 4. Security restricted the use of radio to a minimum. To increase cryptographic security, special SIS settings ("Heinrich") were used with the "Enigma" machine.

The following wire communication for the battalion was considered as a bare essential:

A teletype line to Referat D.

A teletype line to Luftflotte 4.

Two teletype lines to the nearest Luftwaffe exchange over which all SIS units could to be reached.

One telephone line was required to the Luftflotte, and two trunks to the nearest Luftwaffe exchange. Operational priority was authorized for urgent calls. Conference calls with the out-stations could be arranged for the quick communication of D/F and evaluation results. Voice frequency links (Richtverbindung) were used in the Caucasus and at Muenzkirchen before completion of the wire network.

In conclusion it can be said that the construction of wire communication was very difficult, but was eventually accomplished. Land-line communication, when the battalion was located at Debrecen and at Horn in the Vienna area, was severely disrupted by Allied air attacks.

4. Comments.

The forming of Regiment 353, East, in the fall of 1944 proved an unfortunate experiment, as poor communication did not permit close co-operation between the battalions and the regiment. Had the regiment been formed at any earlier date, when communication was more adequate, it undoubtedly would have proved advantageous.

It was realized as necessary that an exchange of results and operational techniques with the Chi-Stelle, as a central collecting agency, should take place. However, the exercising operational control by the Chi-Stelle was impractical, owing to the distances involved. Co-operation with the other SIS battalions on the eastern Front should have, and did, exist.

Personnel strength of intercept and evaluation companies, though stipulated on paper, was dictated by necessity in the same way as was equipment. The evaluation company always had to be larger than authorized by the Table of Organization. Demand for radio sets also far exceeded the Table of Equipment. Personnel and equipment needs depended so much on local operating conditions that allotments could not be standardized.

The Russians, in developing their signal equipment, made very little progress as compared to the enemies of Germany in the West. For this reason, the type intercept receivers used by the Luftwaffe SIS on the Eastern Front proved adequate for the entire war. When replacements were required, obsolete receivers which had been discarded in the West proved sufficient.

The Russians had only few radar installations and even these were of foreign manufacture. Here again, discarded receivers from the West proved adequate for intercept purposes.

The German Adcock D/F (A-70F) was not as good as it might have been. The need for an efficient, mobile HF D/F was definitely felt. When experiments were made in mobilizing the A-70F, mechanical trouble ensued after the first few moves.

In the beginning, SIS methods and techniques were enshrouded in the greatest secrecy, even when dealing with the Luftflotte. It was found that this policy hampered the expedient tactical use of signal intelligence. Security was therefore relaxed to a certain extent, and staff officers, particularly those in the A-2 section, learned enough about SIS methods to recognize its value in future planning.

It often occurred that local, district and unit commanders, with no knowledge of the SIS, attempted to use personnel of the battalion for other tasks, and stringent orders from the Luftflotte, and even Luftwaffe Headquarters, were needed to prevent SIS personnel from being used for other details.

III. Liaison.

1. With the A-2.

Liaison with the A-2's of the Luftflotte and Fliegerkorps was very close. A-2's soon recognized that the SIS was one of the most important and reliable sources of enemy intelligence. At the beginning of the war in the East, it was found expedient to assign an SIS liaison officer to the A-2 to maintain an SIS situation map and to brief the A-2 twice daily on SIS results. Flash reports were passed to the A-2 immediately. It was also the duty of the liaison officer to brief combat units, and maintain contact with the Army and Navy SIS. The SIS liaison officers with the Fliegerkorps were often charged with preparing the daily situation reports.

The A-2, in turn, assisted the battalion by making available PW intelligence, photo intelligence, and other collateral material. Frequent visits to the battalion strengthened his confidence in the SIS; the Commanding General and other high-ranking officers followed his example. Consequently, the battalion gained help and support from the Luftflotte in all administrative problems.

2. With the Army SIS

Co-operation with the Army SIS on the southern sector existed at first with NAAST 1, later NAAST 6 and 8, organization and methods of which were similar to those of the Luftwaffe SIS. Liaison officers and non-commissioned officers were mutually exchanged. The number of search receivers used by the Army was important

to the Luftwaffe, as all enemy air force traffic intercepted by the Army was forwarded to the Luftwaffe, thus helping the battalion to economize in the use of intercept sets. Generally the Luftwaffe SIS furnished more tactical intelligence to the Army than vice-versa, particularly during periods of silence on the part of the enemy ground forces. As a rule, the Luftwaffe SIS was the first to recognize the forming of hostile concentrations and to learn of offensive intentions, and therefore was able to give valuable information to the Army.

3. With the Navy SIS

The German Navy had SIS stations in Constanta and Eupatoria, which intercepted traffic of the Russian Black Sea fleet. The codes used by this fleet were never solved. The Navy SIS was very much interested in the interception of traffic of the Black Sea Air Force, particularly that of its naval reconnaissance aircraft. Interception was accomplished by the battalion itself, the company in Constanta, and its out-station in Eupatoria. After the company in Constanta was transferred to the SIS battalion in Pancevo, it continued this work alone under W-Leit, Southeast. The Black Sea Air Force consisted of fighter, bomber, torpedo bomber, and air-sea-rescue units, whose organization, location, and strength were known through the work of the Luftwaffe SIS. The code used by the naval reconnaissance units was broken, and some of these aircraft were shot down by German fighters, thanks to the work of the SIS. The Navy was much interested in reconnaissance reports on its own movements which made it possible to warn German convoys of probable air or underwater attack.

4. With the Hungarian SIS

Liaison with the Hungarian SIS existed since the time of the establishment of a fixed Luftwaffe SIS station in Budapest. Its work had to do largely with the training of the Hungarian SIS. The Hungarians were interested especially in the

monitoring of Rumania, Jugoslavia and Slovakia but had never shown any special ability in this work. They had no capable personnel, particularly in the field of cryptanalysis. The interception of Rumania was facilitated by the possibility of purchasing her codes.

The German SIS was very cautious in dealing with the Hungarians, and did not supply them with any codes which had been broken. According to German opinion the Hungarian SIS was unreliable.

One Hungarian SIS company operated on the Eastern Front in the fall of 1941, and the battalion of the southern sector furnished it with a liaison team. One year later the company was withdrawn, having accomplished but very little. After the transfer of the battalion to Debrecen, in April 1944, contact with the Hungarian SIS was re-established. One company of the Hungarian SIS battalion, which was monitoring the Russian Air Force, joined the battalion. It functioned as an intercept company only, since its cryptanalytic and evaluation sections were of poor quality. All its intercepted material was evaluated by the battalion. Later the company moved to the Reich together with the battalion, and became part of it in every respect. However, on 1 May, 1945, it had to be removed, and, after the destruction of all valuable and secret material, was sent to a Hungarian detention camp.

IV. Achievements of the SIS.

The value of the SIS was soon recognized on the southern sector. It offered information on:

The enemy air situation

The organization and order of battle of the enemy air forces.

The strength of enemy units including type and armament of aircraft.

The occupation of airfields.

The movements and concentration of the enemy air forces.

The operational intentions of the enemy.

Air transport.

Supply.

Probable targets.

Many other details, such as confirmation of German claims, morale of Russian troops, etc., gave a good picture of the enemy situation.

The work of the SIS was especially valuable during the many German withdrawals, and during periods of bad weather, when reconnaissance aircraft were grounded.

Particularly valuable were the timely reports of enemy concentrations and operational intentions, as the following examples show:

During the battle of Stalingrad, in November 1942, the SIS recognized and gave timely warning of heavy Russian concentrations north and south of the front. The shifting of Russian air bases and combat aviation were recognized as preliminaries aimed at the liberation of Stalingrad. This assumption was confirmed by the events which led to the encirclement of the German 6th Army.

In February, 1943, the Army Group Popov, consisting of motorized units, was making preparations in the Izium sector to take the offensive and advance to the south to reach the sea of Azov, in order to cut off the German forces on the Mius front. Both the air and ground force SIS recognized every move of the Russians, and countermeasures were taken which led to the capture of General Popov and part of his forces. The

following interesting message of one of the corps to the Army Group Popov was intercepted:

"It is absolutely vital to reorganize our code and grid code system, as every operation which we are ordered by radio to perform, is made impossible by immediate enemy action. We are betraying ourselves."

This not only proved the effectiveness of the German SIS, but also knowledge on the part of the enemy of its existence.

In the spring of 1944, the SIS recognized the importance of the Dniester bridges near Dubossary and Jampol to the Russian offensive. Bombers and fighter bombers attacked those bridges, and seriously hampered the Russian advance for several days. The following enemy message, intercepted by the Luftwaffe SIS, shows the effectiveness of the attack:

"Enemy aircraft are continuously over us. All our work (building of bridges) is being destroyed in its initial stages. Not one tank has been able to get across during the past four days. Need constant fighter protection."

The point-to-point networks of the Russian 8th Air Army were effectively intercepted. In the sector of this air army, all attacks in which it participated could be predicted. It was known that an attack was impending when smoke signals were ordered. The ground forces could then be notified of the breadth and direction of the proposed attack, and could take action accordingly.

When, in the spring of 1943, air support parties joined the Russian ground forces, it was possible to intercept all their messages covering requests for air support, thus facilitating German countermeasures.

The operations of American aircraft in Russia were revealed through the interception of Russian flak and air raid warning networks. Flights and their exact strength were known.

R/T interception on the southern sector was successful. Fighters, guided by R/T intelligence, almost always made successful contact with the enemy. The use of R/T intelligence enabled the husbanding of the relatively weak German fighter forces, and much fuel was conserved by avoiding unnecessary operations.